

CURRENT GLOBAL REVIEWER

Issue XI , Vol. III (Indexed)
Oct. 2020

Peer Reviewed
SJIF Impact factor

ISSN : 2319 - 8648
Impact Factor : 7.139

Impact Factor – 7.139 ISSN – 2348-7143

Curren Global Reviewer

Peer Reviewed Multidisciplinary International Research Journal

PEER REVIEWED & INDEXED JOURNAL

October 2020 Issue- XI Vol. III

Chief Editor

Mr. Arun B. Godam

Shaurya Publication , Latur

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Present Preface Message

Honourable Prof.,

Here's a great pleasure to hand over this + research Journal title '**Current Global Reviewer**' At Present different papers are published through various branches of knowledge. But they are concerned to specific subject or thought. We are very glad in publishing this paper to get the more information about research to new learner about research in all the spheres. This is the age of supersonic. That is why we must concentrate at present at a large scale in higher education. It's very important in this modern phase for researchers and to encourage for the effort put by us. In the long run it will very useful for us as guide lines and directions.

'**Current Global Reviewer**' has been started to publish the research paper by great thinkers, intelligentia, scholars, lectures. Those who have contributed in the field of higher education and research for advanced knowledge. We are publishing research paper written in Marathi, Hindi & English, Languages. It has been included research papers in language and literature, Social Science, Social work, commerce, Management, Law, Computer Science etc.

Hope you will remain in

Co- Operation in future

Thank You.

Editor In Chief

Mr. Arun B. Godam

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Classification of Watershed Areas in Marathwada Region: A Geographical Study

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ABSTRACT:

Marathwada region is known as backward region of Maharashtra. Due to which so percent of the total area falls in the drought prone area. The average rainfall in the division is 754.6 mm. rainfall falls in average days of 46 in the year. The flow of water during the period is carried by rivers and drains. With the flow of these streams, large quantities of Soil are carried out, hence the process of natural resources is going on in the form of 60 percent of the Marathwada regions. Main occupations are agriculture, only 74.29 percent of the total area under cultivation is irrigation area and remaining 22.45 percent of the area is relying on rain water due to the increasing population needs, it is a challenge to increase agricultural productivity and prosperity in the rural area.

The watershed areas are an important source of water. Ideally, a protected watershed can provide water that is pure enough to drink without any additional treatment. To solve the problem of water. For this, it is very important for you to understand the concept of watershed and its classification. The geographical structure of the Marathwada division has affected the watershed structure, size, extent and numbers. In this article, it has been studied district wise and an attempt has been made to understand the classification of watersheds.

Key words: *Classification, Watershed, water scarcity*

INTRODUCTION:

Water is an essential resource for the development of agriculture and living organisms including human beings. Hence, water to be the “key of life and development”. Water is the source of the all living beings of the earth. Water is most important factor in development of living beings and human development is totally depending upon its availability. Water ratio is definite on the earth in the form of (sea area, vapor in the climate, snow in mountain region, water in rocks) nature keeps balance through water cycle. But due to selfishness human beings had created imbalance in the ratio of water.

Water scarcity and poor water quality are major problems in numerous countries. In the case of Indian circumstances where the rural agrarian economy is

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solely dependent on the gamble of monsoon which is erratic in nature and is unevenly distributed. Due to water scarcity there will be various problems leads to disputes among states and nations so there is need to put a control over water problems and do not let to flow, for its proper utilization, there is need of percolation tanks, farm pond, watershed development, land management, water and soil conservation, well reconstructions required great attention. Due of it watershed development is a malty area, multidiscipline and multipurpose task, hence it's planning, execution and management is need of hour.

STUDY AREA:

The absolute location of the region is from 17⁰35' to 20⁰ 40' North latitude and 74⁰40' to 78⁰19' East longitude with the total geographical area of 64,434 Sq.km. Which is 20.95 percent of the state and its population are 1.87 crores which are 16.66 percent of the state as per census of 2011. Its shape is roughly triangular. East-West maximum extension of region is 394 km and North-south extension of region is 330 km. Total Geographical area of region is administratively study region is divided into eight districts that are further divided into 76 tahsils.

OBJECTIVES OF THE STUDY:

Main objectives of the study are as follows:

- To Geographical Study of Watershed area in Marathwada Region.
- To Assess the Classification of Watershed areas in Study Region

HYPOTHESES

Following hypotheses have been tested in this study

- There are different types of watersheds in Marathwada.
- Watershed distribution is uneven in the Marathwada region

DATABASE AND METHODOLOGY

this study focused on Watershed area Development and these watershed programmes implemented by both the state government and central government. It's Impact on migration for the purpose of analysis, The Secondary Data information has also been collected from the socio-economic reviews of the districts, district census handbooks, statistics office will be referred for the required secondary information.

Methodology

The data thus collected through primary and secondary sources were processed and represented by statistical and cartographic techniques.

CLASSIFICATION OF WATERSHEDS IN MARATHWADA

Ground Water Survey and Development Agency of Maharashtra has delineated

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states total geographic area in 1531 watershed areas. In the State, the GSD Agency has divided watersheds in 4 categories based on size. The Information is given in the Table No. 3.2

Table No. 1.1 Watersheds and watershed area in Marathwada Region

Sr. No	District	Mega Watersheds (No)	Sub Watersheds (No)	Mini Watersheds (No)	Micro Watersheds (No)	Total Area (Ha.)
1	Aurangabad	55	226	1190	2818	1015158
2	Jalna	47	104	2132	969	767009
3	Beed	54	191	1299	2428	1061174
4	Latur	35	117	806	1346	798524
5	Osmanabad	41	123	1307	1295	755884
6	Nanded	49	151	935	1993	1051641
7	Parbhani	33	127	971	1267	630008
8	Hingoli	24	119	540	1016	470786
Marathwada		338	1158	9180	13132	6550184

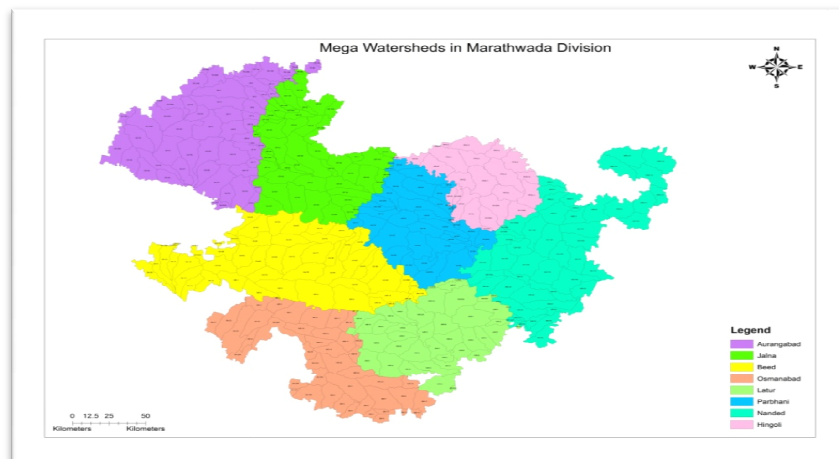
Source: Deputy Director Office, GSDA Department, Aurangabad

The above table gives the details of the mega and micro watershed area created by ground water survey and development agency (GSDA) in Marathwada region. Their information is as follows.

Mega Watersheds:

Mega watershed has a drainage area of 100 to 1000 ha drained by tertiary stream, a tributary of a secondary river, Ground water survey and development agency of Maharashtra has set up a total of 1531 mega watersheds in Maharashtra, of which 338 mega watersheds is found in Marathwada. The district wise information is given in Table 1.1 above. The largest mega watersheds in Marathwada are 55 in Aurangabad district and the lowest in Hingoli district is 24. Their distribution is shown in the following map No 1.1.

Map No 1.1 Mega Watersheds in Marathwada Region



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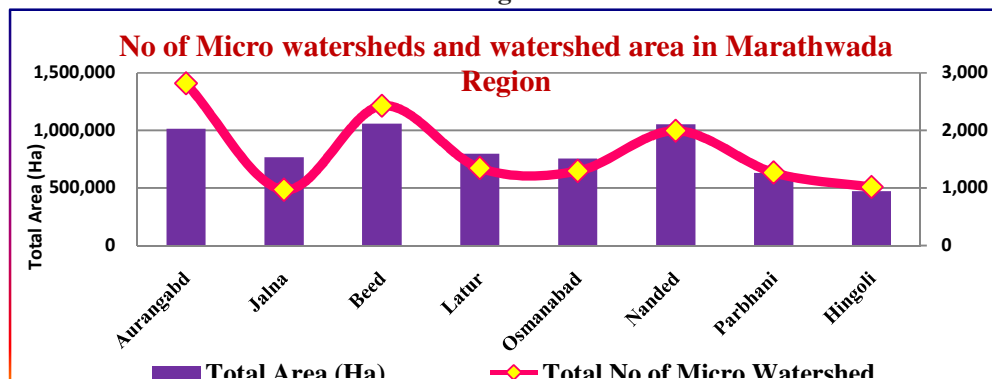
Sub Watersheds:

Sub watershed is drained by a stream which is the tributary of a tertiary. It has a drainage area between 200 to 400 ha. There are 1158 sub-watersheds in Marathwada and their district wise information is given in table no 1.1 below. The number of the most sub watersheds in Marathwada is 226 in Aurangabad district and the lowest number is 25 in Jalna district.

Micro Watersheds

Micro watershed has a drainage area of less than 10 ha. and is drained by a streamlet. The above table no 3.2 provides information about district wise micro-watersheds of Marathwada. The number of micro-watersheds in Marathwada is 13132. The highest number 2818 of micro watershed are in Aurangabad district and the lowest number 25 are in Jalna district. The following graph no. 1.1 shown information about it.

Graph No 1.1, No of Micro Watersheds and Watershed area in Marathwada Region



Mini Watersheds:

Mini watershed has a drainage area of 40 to 100 ha and is drained by a tributary of quaternary. The number of mini watersheds in Marathwada is 9180 in table 1.1 below. The study of district wise mini watershed shows that the highest no of watersheds in Marathwada are in Jalna (2132) district and the lowest are in Hingoli (540) district.

WATERSHED AREA IN MARATHWADA REGION:

Studying the watershed area of Marathwada in the table no 3.2 below shows that the most watershed area is in Beed district 16.20 percent and the lowest area is in Hingoli district 7.19 percent. In Aurangabad 15.50 percent, Jalna 11.71 percent, Latur 12.19 percent, Osmanabad 11.54 percent, Nanded 16.06 percent and Parbhani district 9.62 percent watershed area. Its distribution is shown in the following graph no 1.2.

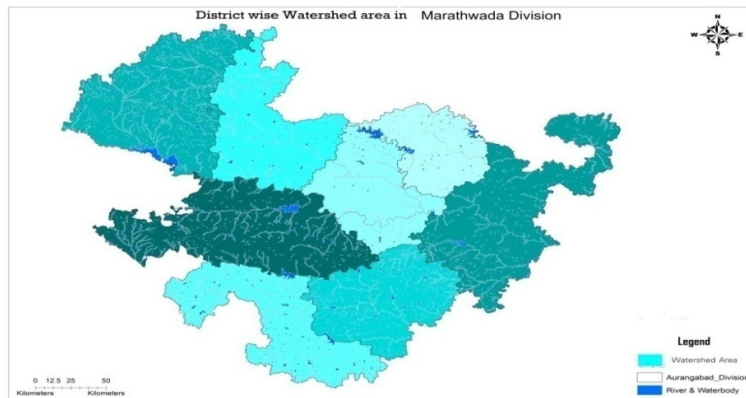
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Map No 1.2 District wise watershed area in Marathwada Region



CATEGORIES OF WATERSHEDS IN MARATHWADA REGION

The Groundwater Survey and Development Agency (GSDA) have divided watersheds in 5 categories based on groundwater and geomorphology.

Studying the watershed area of Marathwada in the table no 1.3 below shows that the most watershed area is in Beed district 16.20 percent and the lowest area is in Hingoli district 7.19 percent. In Aurangabad 15.50 percent, Jalna 11.71 percent, Latur 12.19 percent, Osmanabad 11.54 percent, Nanded 16.06 percent and Parbhani district 9.62 percent watershed area.

Table No. 1.3 Watersheds in Marathwada Region

Sr.No.	District	Over-exploited	Critical	Semi-critical	Safe	Poor Quality	Total
1	Aurangabad	1	0	4	50	0	55
2	Jalna	0	0	6	41	0	47
3	Beed	0	0	1	53	0	54
4	Latur	7	0	4	24	0	35
5	Osmanabad	2	0	5	34	0	41
6	Nanded	0	0	0	49	0	49
7	Parbhani	0	0	0	33	0	33
8	Hingoli	0	0	0	24	0	24
Marathwada		10	0	20	308	0	338
Maharashtra		73	3	119	1332	4	1531

Source: Deputy Director Office, GSDA Department, Aurangabad

The above table 1.3 indicates the number of watersheds in the Marathwada region. The region has 12671 total watersheds. Out of these 332 are large, 1158 are sub-watersheds, 1971 are small and 9210 are micro watersheds.

As shown in the table no 1.3 above, most of the 1531 watersheds in Marathwada

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region are watershed for safe watersheds. Safe watersheds where groundwater development is less than 70% of the recharge and where water table, either Post or Pre monsoon interval or both, shows significant declining trend. There are 23.12 percent safe watersheds in the Marathwada region of Maharashtra. The highest safe watersheds of 308 watersheds are 53 in Beed district. So the number of watersheds is in Latur and Hingoli district.

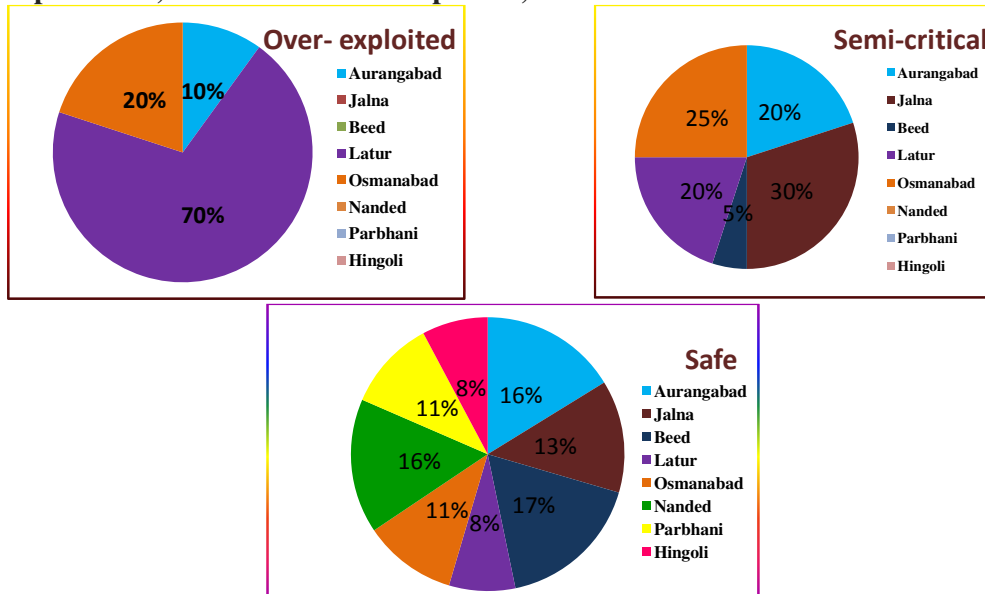
Semi-Critical watershed where groundwater development is between 70 and 90% of the recharge and where water table, either Pre or Post monsoon interval, shows declining trend. Compared to Maharashtra, the number of semi-critical watershed in Marathwada region is only 16.2 percent. Of the total 119 cm critical watershed in Marathwada region, 6 districts are in Jalna district, 5 in Osmanabad district, 4 in Aurangabad and Latur districts and 1 in Beed district. There are no critical watersheds in Nanded, Parbhani and Hingoli districts.

Overexploited watersheds means groundwater development is more than 100% of the recharge and the water table during either Post or Pre monsoon interval or both shows declining trend.

According to the data of GSDA, 73 watersheds are exploited in Maharashtra, out of which 10 are the watersheds in the Marathwada region. In Latur, Osmanabad and Aurangabad districts in the Marathwada region, it is the largest watersheds in the Latur district.

Critical watershed where groundwater development is in between 90 to 100% of the recharge and where water table, either Post or Pre monsoon interval or both, shows significant declining trend. Distribution of district wise watershed of Marathwada region is shown in the Graph no. 1.2 below.

Graph No.1.2, District wise over exploited, semi critical and safe watersheds



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CONCLUSION:

There are 338 mega watersheds out of which sub-watersheds are in the highest number of sub-watersheds are in Beed district. 13132 has macro watersheds and the highest number of macro watersheds is 2818 in Aurangabad district and lowest 969 in Jalna district. In this macro watersheds there area micro (small) watersheds. With the highest number 2132 in Jalna district and the lowest number is 540 in Hingoli district.

According to the GSDA report, 91.12 percent out of the 338 mega watershed areas in the Marathwada region are safe and 5.92 percent of the watershed area is in semi-critical condition.

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